



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/574,555

05/18/2006

Gunter Rogoll

MSA 265

2113

7590
Horst M Kasper
13 Forest Drive
Warren, NJ 07059

01/02/2009

EXAMINER

TEIXEIRA MOFFAT, JONATHAN CHARLES

ART UNIT

PAPER NUMBER

2863

MAIL DATE

DELIVERY MODE

01/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,555	Applicant(s) ROGOLL ET AL.	
	Examiner JONATHAN TEIXEIRA MOFFAT	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendments to the claims, filed 12/5/2008 are accepted and appreciated by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1.

Claims 1-2, 7-9, 11-13 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Scecina (US pat 5511223).

With respect to claims 1 and 21, Scecina discloses an apparatus comprising:

1) A modular fieldbus board (Fig 1) comprising a number of fieldbuses (Fig 1 item 40 is the fieldbus module, Fig 5 item 18 shows the fieldbus board itself) connected to a bulk power supply (column 3 lines 64-67).

2) A diagnostic system (Fig 1 item 50 and Fig 4) comprising a monitoring transceiver means (Fig 4 items 12-15) connected to two or more of the number of fieldbuses (Fig 1 items 40) by means of two or more signal injection and/or signal detection points, wherein the points are formed to inject and/or detect both common mode and differential mode signals (abstract. According to the knowledge of one of ordinary skill in the art, any two-cable communication line is “adapted to” inject and/or detect such signals. Common mode is simply the average of the two

Art Unit: 2863

line signals and thus both exist at the same time), and wherein the points are interposed between the bulk power supply and the fieldbus trunk, such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (Figs 4 and 5).

3) A first digital and/or analog interface separate from the field bus trunk and adapted to transmit diagnostic data detected by the monitoring transceiver means directly to an associated digital or analog device (Fig 1 item 82 vs. “test cable and connector” which is the “fieldbus trunk”).

With respect to claim 2, Scecina discloses the fieldbus physical layer characteristics comprise one or more of: over/under termination, noise/ripple level, signal level, signal bias, signal jitter, signal ringing, signal distortion, signal attenuation, cross talk, unbalance, and earth leakage (column 4 lines 21-50).

With respect to claim 7, Scecina discloses a first digital and/or an analogue interface, is adapted to receive operating commands from an associated digital or analogue device (Fig 1 item 60 and claim 2).

With respect to claim 8, Scecina discloses a second digital and/or an analog interface, such that diagnostic data detected and/or alarm created by the monitoring transceiver means during use are transmitted to other associated diagnostic systems (Fig 1 item 60 this workstation is another system associated).

With respect to claim 9, Scecina discloses a visual means to display diagnostic data (Fig 1 item 60 and claim 2). “Provided with” is not limited to “integral to”.

Art Unit: 2863

With respect to claim 11, Scecina discloses that the monitoring transceiver means is connected to the bulk power supply (column 3 lines 64-67).

With respect to claim 12, Scecina discloses signal detection points are disposed within hardware carried on the board (Fig 5).

With respect to claim 13, Scecina discloses an apparatus comprising:

1) A backplane (Fig 1 item 19 or 40 or 44).
2) A number of fieldbuses (Fig 1 item 40 is the fieldbus module, Fig 5 item 18 shows the fieldbus board itself) mounted on the backplane (Fig 1) connected to a bulk power supply (column 3 lines 64-67).

2) A monitoring transceiver means (Fig 4 items 12-15 and 50 and Fig 4) connected to two or more of the number of fieldbuses (Fig 1 items 40) by means of two or more common or differential mode signal injection and/or signal detection points, wherein the points are formed to inject and/or detect both common mode and differential mode signals (abstract. *According to the knowledge of one of ordinary skill in the art, any two-cable communication line is "adapted to" inject and/or detect such signals. Common mode is simply the average of the two line signals and thus both exist at the same time*), and wherein the points are interposed between the bulk power supply and the fieldbus trunk, such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (Figs 4 and 5).

3) A first digital and/or analog interface separate from the field bus trunk and adapted to transmit diagnostic data detected by the monitoring transceiver means directly to an associated

Art Unit: 2863

digital or analog device (Fig 1 item 82 vs. “test cable and connector” which is the “fieldbus trunk”).

With respect to claim 20, Scecina discloses an apparatus comprising:

- 1) A backplane (Fig 1 item 19 or 40 or 44).
- 2) A bulk power supply (Figs 1 and 5 and column 3 line 58 – column 4 line 7).
- 3) A plurality of fieldbuses (Fig 1 item 40) including a fieldbus trunk (Fig 1 item "test cable and connector" and all power connections shown in Fig 5) mounted on the backplane (Fig 1) and connected to the bulk power supply (Fig 1). Without power the apparatus would not function.
- 4) Two or more members selected from the group comprising common mode signal injection point, common mode signal detection point, differential mode signal injection point, and differential mode signal detection point, connected to each of the plurality of fieldbuses, (Fig 5 shows connections for all such test and response signals. See above comments in claims 1 and 13 concerning “common mode and differential mode signals”).
- 5) Monitoring transceiver means connected to two or more of the plurality of fieldbuses by means of two or more signal injection and/or signal detection points, such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (Fig 1 item 50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2.

Claims 1-9, 11-13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eryurek (US pat 6859755) in view of DelaCruz (US pat pub 20040073402).

With respect to claims 1, 13 and 21, Eryurek discloses an apparatus comprising:

- 1) A backplane (Fig 2 item 20).
- 2) A number of fieldbuses (Fig 1 items 20 and Fig 2 each of which is a fieldbus unit in loop 18) mounted on the backplane (Fig 2) connected to a bulk power supply (Fig 2 item 30).
- 2) A diagnostic system (Fig 2 item 36) comprising a monitoring transceiver means (Fig 2 item 32) connected to two or more of the number of fieldbuses (Fig 1 items 20) by means of two or more signal injection and/or signal detection points, wherein the points are formed to inject and/or detect both common mode and differential mode signals (According to the knowledge of one of ordinary skill in the art, any two-cable communication line is “adapted to” inject and/or detect such signals. Common mode is simply the average of the two line signals and thus both exist at the same time), and wherein the points are interposed between the bulk power supply and the fieldbus trunk, such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (Fig 2).
- 3) A first digital and/or analog interface separate from the field bus trunk and adapted to transmit diagnostic data detected by the monitoring transceiver means directly to an associated

Art Unit: 2863

digital or analog device (Fig 2 item 32, for isolation, or Fig 4 item 206 also for isolation and separated monitoring communication).

With respect to claim 2, Eryurek discloses the fieldbus physical layer characteristic comprises, at least noise/ripple level (column 3 line 66).

With respect to claim 3, Eryurek discloses that the monitoring transceiver means also detects one or more characteristics of hardware carried on the modular fieldbus board by means of one or more of said points (column 4 lines 35-38).

With respect to claim 4, Eryurek discloses that the one or more characteristics of hardware comprise one or more of: voltage, short circuit, hardware module failure, quiescent current, and rate of charge (column 4 lines 35-38).

With respect to claim 5, Eryurek discloses that the monitoring transceiver means is adapted to gather received data and produce one or more of: Fourier analysis, trending analysis, and data logging. (column 4 lines 10-21).

With respect to claim 6, Eryurek discloses that the monitoring transceiver means is adapted to provide an alarm in the event that received data indicates one or more of pre-determined failures has occurred on any of the two or more fieldbuses (column 4 lines 14-16 and 19-21) and in which the first digital and/or analog interface is adapted to transmit said alarm directly to an associated digital or analog device (this is inherent, just like a “displaying” function necessitates a “display”, an alarming function necessitates an “alarm” which, being responsive to an electrical signal must be EITHER analog OR digital).

Art Unit: 2863

With respect to claim 7, Eryurek discloses that the first digital and/or an analogue interface is adapted to receive operating commands from an associated digital or analog device (column 4 19-21).

With respect to claim 8, Eryurek discloses a second digital and/or an analogue interface, such that diagnostic data detected and/or alarms created by the monitoring transceiver means in use are transmitted to other associated diagnostic systems (Fig 1 item 14).

With respect to claim 9, Eryurek discloses a visual means to display diagnostic data (Fig 1 item 12 and column 4 19-21).

With respect to claim 11, Eryurek discloses that the monitoring transceiver means is connected to the bulk power supply (Fig 2 item 30).

With respect to claim 12, Eryurek discloses signal detection points are disposed within hardware carried on the board (Fig 2).

With respect to claims 1, 13 and 21, Eryurek fails to specify fieldbus physical layer characteristics between two of the two or more of said points.

DelaCruz teaches, with respect to claims 1, 13 and 21:

2) A diagnostic system (Fig 1 item 22) comprising a monitoring transceiver means connected to one or more of the number of fieldbuses (Fig 1) by means of two or more common mode and/or differential mode signal injection and/or signal detection points, which points are dispersed between the bulk power supply and the fieldbus trunk, such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (paragraph 0012).

Art Unit: 2863

DelaCruz teaches, with respect to claim 10, that the monitoring transceiver means is removable from the fieldbus board (Fig 1 item 22).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of Eryurek by using a separate handheld diagnostics device as taught by DelaCruz. Eryurek discloses that the monitored quality may be signal noise, which, being a subspecies of “fieldbus layer characteristics” clearly is in the same field of endeavor as DelaCruz. Further, the portable device of DelaCruz reduces cost by eliminating redundant components (i.e. using the same testing circuitry for all modules).

3.

Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eryurek and DelaCruz as applied to claims 1 and 13 above, and further in view of Westerfeld (WO 009945621).

With respect to claims 14-19, Eryurek and DelaCruz fail to disclose a power supply converter and conditioner. One of ordinary skill in the art would have found it obvious to put power conditioning and/or conversion onboard such a module to eliminate noise and, especially in the intrinsically safe environment of Eryurek, to prevent sparks or explosions. However, the examiner presents the following reference to show further this obviousness.

Westerfeld teaches, with respect to claims 14 and 17, power supply conversion (Fig 2 item 114) and power supply conditioning (Fig 2 item 1131-113n) in an intrinsically safe fieldbus (abstract) environment (Fig 1 item 1).

It would have been obvious to one of ordinary skill in the art, as stated above to modify the apparatus of Eryurek and DelaCruz by including power conversion and conditioning. Both

Art Unit: 2863

Eryurek and Westfeld present the importance for intrinsic safety of such conversion to prevent an accident due to sparking or other power-related issues.

With respect to claims 15-16 and identical claims 18-19, the examiner has given these claims the broadest reasonable interpretation. The examiner maintains that these claims may be interpreted as “common mode signal detection points” being merely points within the system capable of being monitored with an injected or detected signal. The examiner maintains that, under this interpretation, since reference Westerfeld discloses such components connected to each other, these points do exist though they are not being actively monitored.

Response to Arguments

Applicant's arguments filed 12/5/2008 have been fully considered but they are not persuasive.

In general, the examiner maintains that applicant is placing more weight and inherent scope upon broad or general terminology including, but not limited to, “fieldbus”, “trunk”, “injection/detection point” and “digital/analog interface”. As examples, one of ordinary skill in the art would understand that, given the broadest reasonable interpretation, a “backplane” is merely a component which supports components mounted to it. A “trunk” is, generally, a type of bus or series of electrical connections. A “digital or analog interface” may be anything which connects analog or digital components including circuitry, conductors, adapters, converters or the like. An “injection/detection point” is merely a point at which signals may be detected or injected. As an example of a broadest reasonable interpretation, a conductor on a circuit board is a point at which signals may be read/detected/injected or the like.

Art Unit: 2863

With respect to applicant's amendments, the examiner points out that both references Seccina and Eryurek include boards on which multiple fieldbus boards may be mounted and thusly comprise a "backplane".

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN TEIXEIRA MOFFAT whose telephone number is (571)272-2255. The examiner can normally be reached on Mon-Fri, from 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/jtm/
JTM
12/22/2008

/Bryan Bui/
Primary Examiner, Art Unit 2863